

## **REMARKS**

Following entry of the present amendments, claims 1-4, 6-16, 18-28, and 30-39 will be pending in the present application. Claims 1, 9, 13, 21, 25 and 33 have been amended. Claim 37-39 have been added. No new matter has been added. Support for the amendments can be found throughout the present Specification, including paragraphs 0021-0056 and Table 1.

### **Rejections under 35 U.S.C. § 103**

Claims 1-4, 6-8, 13-16, 18-20, 25-28 and 30-32 stand rejected under 35 U.S.C. § 103(a) allegedly as being obvious over US 2003/0204513 (Bumbulis) in view of US 5,727,081 (Burges) and further in view of US 7,149,262 (Nayar). Without conceding the merits of the rejection, Applicant has amended the claims to further clarify the claimed embodiments.

As amended, claims 1, 13 and 25 recite, in part:

- an index key that contains multiple columns;
- the index key containing more than one type of column;
- tracking column normalization, including determining a column type, determining an associated transformative function and applying the associated transformative function to the value of the column; and
- storing a normalized index key value that is updated for each column that is normalized.

Applicant asserts that the cited prior art references do not disclose or suggest any of these features.

As noted in the Background and Summary sections of the present Specification, minimizing database size is critical, especially in mobile devices. One way of minimizing database size is through normalization. However, traditionally, normalization over different column types was not available, and thus increased database size.

The amended claims clarify that an index key with multiple columns of multiple types is required. The claimed embodiments perform normalization over the different column types without any need for special handling. For example, Table 1 of the present

Specification describes an exemplary embodiment where normalized functions generate index key normalizations for different column types.

Bumbulis, by contrast, does not disclose or suggest different column types in an index key. In fact, no mention of different column types is made in the entire Bumbulis application. Thus, Bumbulis suffers from the deficiencies identified by Applicant in the present Specification; namely, Bumbulis does not provide for index key normalization for index keys with multiple columns of multiple types. Nor does Bumbulis disclose or suggest any of the amended features recited above.

The office action cited Burges only in respect to disclosing a mapping function. However, claims 1, 13 and 25 no longer contain the feature of a mapping element.

In any event, Burges does not disclose or suggest different column types in an index key because Burges is directed to an entirely different system in an entirely different field. The presently claimed embodiments are directed to minimizing the size of b-trees associated with databases, where one goal is making mobile devices more efficient. (Specification at paragraphs 0004, 0006, 0007, and 0018). In contrast, the subject matter of Burges is directed towards creating a system for handwriting recognition. (Burges at col. 1, ll. 16-31 and col. 3, ll. 50-54). Burges does not disclose index keys or the use of a b-tree database at all. Further, to the extent that Burges mentions databases, it is in their traditional usage. Nowhere does Burges suggest a new way to use or change databases. Therefore, Burges cannot disclose or suggest an index key with multiple columns of multiple types, nor any of the amended features recited above.

Nayar also does not disclose or suggest different column types in an index key because Nayar is directed to an entirely different system in an entirely different field. The presently claimed embodiments are directed to minimizing the size of b-trees associated with databases, where one goal is making mobile devices more efficient. (Specification at paragraphs 0004, 0006, 0007, and 0018). In contrast, the subject matter of Nayar is directed towards enhancing video images (Nayar at col. 3, ll. 8-11, Abstract). Nayar simply does not disclose or suggest index keys or the use of a b-tree or any database at all. Therefore, Nayar cannot disclose or suggest an index key with multiple columns of multiple types, nor any of the amended features recited above.

Because the cited prior art references nowhere disclose or suggest the amended features of the present claims, Applicant asserts that claims 1, 13 and 25 patentably define over the cited prior art references. Accordingly, Applicant respectfully requests the withdrawal of the rejection of independent claims 1, 13 and 25.

Inasmuch as claims 2-4, 6-8, 14-16, 18-20, 26-28 and 30-32 all depend directly or indirectly on independent claims 1, 13 and 25, Applicant submits that that the dependent claims are patentable for at least the same reasons as described above for independent claims 1, 13 and 25. Accordingly, Applicant respectfully requests withdrawal of the rejection of claims 2-4, 6-8, 14-16, 18-20, 26-28 and 30-32.

Claims 9-12, 21-24 and 33-36 stand rejected under 35 U.S.C. § 103(a) allegedly as being obvious over Bumbulis in view of Burges, and further in view of Nayar. Without conceding the merits of the rejection, Applicant has amended the claims to further clarify the claimed embodiments.

Specifically, Applicant has amended independent claims 9, 21 and 33 to clarify that the unnormalization is applicable to index keys having multiple columns of multiple types. The amendments are similar to those introduced above for claims 1, 13 and 25. Therefore, Applicant asserts that amended claims 9, 21 and 33 patentably define over the cited prior art for at least the same reasons discussed above relating to claims 1, 13 and 25.

Accordingly, Applicant respectfully requests the withdrawal of the rejection of independent claims 9, 21 and 33. Inasmuch as claims 10-12, 22-24 and 34-36 all depend directly or indirectly on independent claims 9, 21 and 33, Applicant submits that that the dependent claims are patentable for at least the same reasons as described above for independent claims 9, 21 and 33. Accordingly, Applicant respectfully requests withdrawal of the rejection of claims 10-12, 22-24 and 34-36.

#### **New Claims**

Applicant has added new claims 37-39. The addition of claims 37-39 does not constitute new matter. Support for claims 37-39 is found throughout the present specification, and particularly at paragraphs 0021-0056.

Claims 37-39 include features in addition to amended claims 1, 13 and 25. Applicant's review of Bumbulis, Burges and Nayar suggests that the cited references do not

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appear to disclose these additional features. Accordingly, Applicant respectfully submits that claims 37-39 patentably define over the cited references.

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**CONCLUSION**

In view of the foregoing, Applicant respectfully submits that the claims are allowable and that the present application is in condition for allowance. Reconsideration of the application and an early Notice of Allowance are respectfully requested. In the event that the Examiner cannot allow the present application for any reason, the Examiner is encouraged to contact the undersigned attorney, Stuart A. Schanbacher at (215) 564-0947, to discuss resolution of any remaining issues.

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